DPM 209

Silicone Dielectric Compound G 624

product description

G 624 is a compound based on a silica-thickened dimethyl silicone fluid. G 624 has been found useful for a wide variety of applications within a temperature range of —65F to 400F (—55C to 204C) and meets requirements for Specification MIL-S-8660B, Insulating and Sealing Compound, Electrical.

features

- Wide Temperature Range
- Hydrolytically Stable
- Low Toxicity
- Oxidation Resistant
- Radiation Resistant
- Water Repellent
- Excellent Dielectric
- Chemically Inactive
- Non-Corrosive
- Good Adherence
- Meets MIL-S-8660B

applications

- Automotive & Aircraft: Ignitions
  Electrical Connectors
  Moisture Barrier
  Thermal Conduction
  Rubber & Plastic Lubrication
- Military Specification MIL-S-8660B: Battery Terminals
  Switch Gears

national stock numbers

- 5970-00-159-1598 8 oz. tubes
- 5970-00-702-7255 1-lb. can
- 5970-00-295-7685 10-lb. can
- 5970-00-242-0910 50-lb. can

typical product data

(Not intended for use in preparing specifications.)

PROPERTY	VALUE
Appearance	White-Translucent
Temperature Range	—65F to 400F (—55C to 204C)
Penetration[1]	310 max
Bleed[2b]	8% max
Evaporation[2b]	2% max
Specific Gravity[3]	1.03
Thermal Conductivity[4]	a) 0.085 b) 3.8×10^{-4}
Dielectric Strength[5]	500 volts/mil
Volume Resistivity[6]	1×10^{13} ohm-cm-min
Dielectric Constant[7]	2.9 max
Dissipation Factor[7]	0.0005

FOOTNOTES
[1] Penetration after working 60X ASTM D-217
[2] Beaker and cone method
a) 150C — 24 hrs.
b) 200C — 30 hrs.
[3] Specific gravity column
[4] Hot wire method
a) BTU/ft²/hr/°F/ft
b) G-CAL/cm²/sec/°C/cm
[5] ASTM D-149 — 50-mil gap
[6] ASTM D-257
[7] ASTM D-150

Properties shown in this summary should not be used in preparing specifications. Assistance and recommendations are available by contacting the Fluids, Resins and Specialties Product Section, General Electric Company, Silicone Products Department, Waterford, New York 12188.

why use G 624 silicone dielectric compound?

WIDE TEMPERATURE RANGE

G 624 silicone compound has been found useful at temperatures ranging from —65F to 400F (—55C to 204C).

HYDROLYTIC STABILITY

The absence of unsaturation, lack of reactive extreme-pressure additives, inherent water repellency, temperature and shear stability all contribute to this important property.

OXIDATION RESISTANCE

G 624 compound offers oxidative stability under total air saturation to 400F (204C), while many petroleum oils oxidize at approximately 150F (66C).

WATER REPELLENCY

G 624 effectively seals out moisture over a wide temperature range.

EXCELLENT DIELECTRICS

G 624 offers high dielectric strength and a low dissipation factor.

OUTSTANDING CONSISTENCY CHARACTERISTICS

The consistency of G 624 is relatively unchanged over a wide temperature range. G 624 will not solidify, smoke, melt or char within the recommended temperature range.

RADIATION RESISTANCE

Silicone compounds have been exposed to radiation doses up to 10^6 rads, at pressures down to 10^{-5} torr, and exhibited little penetration change or deterioration.

CHEMICALLY INACTIVE

G 624 remains virtually odorless and colorless during its lifetime of service.

NON-CORROSIVE

G 624 is a chemically inactive compound material which has not been observed to corrode metals and which has only a minor effect on rubber and plastic.

CORROSION PROTECTION

G 624 compound is an excellent corrosion protector for many non-painted ferrous metals.

GOOD ADHERENCE

G 624 compound can adhere under conditions which will cause a fluid to drip or spin off.

EXCELLENT RELEASE PROPERTIES

G 624 has been found useful as a release agent for rubber and plastic.

toxicity

Silicone compounds have not been known to produce any harmful effects, either internally or externally. Contact with the eyes may cause transitory irritation, however, this will usually disappear within 24 hours. Flushing the eyes with water for several minutes can reduce discomfort.

application techniques

Silicone compounds, as received, may be wiped on or applied using appropriate dispensing equipment. When dispersed in non-polar solvents, these compounds may be applied by brushing, spraying, or by dip coating.

solvent dilution*

Silicone compounds may be diluted with non-polar solvents* for easy application, however, caution is required in regard to the specific use. For example, chlorinated solvents* may promote corrosion.

clean-up

Clean-up of silicone compounds can be easily accomplished using non-polar solvents* such as mineral spirits or 1,1,1-trichloroethane. Care must be taken to remove all traces of silicone compound before painting.

caution

General Electric Silicone General Purpose and Dielectric Compounds should not be used as a lubricant for the reduction of sliding friction of two metallic surfaces, e.g., ball bearings, bronze sleeve bearings, etc.

bulk dispensing

All General Electric compounds are available in various bulk containers. Conventional handling equipment may be used to transfer and apply the material from bulk containers. The higher viscosity, higher density compounds may require heavier duty pumping equipment, however, no other dispensing difficulties have been reported. Of course, care should be taken to have all equipment clean and dry to avoid the possibility of contamination.

***SOLVENT HANDLING**

When solvents are used as described above, proper safety precautions must be observed. All solvents must be considered toxic and should be used only in well ventilated areas. Prolonged exposure to solvent vapors must be avoided. If flammable solvents are used, storage, mixing, and use must be in areas away from open flames or other sources of ignition. The selection of any solvent, particularly chlorinated hydrocarbon solvents, will require consideration of applicable OSHA, EPA, and other Federal, State and local regulations.

storage

All silicone compounds possess excellent shelf life, in excess of one year when stored in an unopened container at temperatures below 122F (50C). Although some oil separation may occur in storage, this is normal for all compounds. Storage in closed containers is recommended to prevent contamination by foreign materials and to maintain dielectric properties.

ordering instructions

General Electric Silicone General Purpose and Dielectric Compounds are available direct from General Electric or from distributors nationwide. For the name of your nearest Silicone Products Distributor or for more information on these products, contact the General Electric Company, Silicone Products Department, Waterford, New York 12188, or the Silicone Products Department sales office nearest you.

GENERAL ELECTRIC DIELECTRIC COMPOUNDS

	Temp. Range	Consistency Worked Penetration[1]	Bleed[2]	Evaporation
G 622 is useful for dielectric sealing of copper components. It is ideal protection against oxidation at temperatures from —65F to 400F, extremes that would make conventional greases solidify or suffer oxidation, evaporation, or excessive bleed loss. This grease is widely used in the electrical, electronics, and aircraft industries.	—65 to 400F (—55 to 204C)	200-300	10% max[b]	3% max[b]
G 624 is useful for a wide variety of applications within a temperature range of —65F to 400F and meets requirements for Specification MIL-S-8660B, Insulating and Sealing Compound, Electrical.	—65 to 400F (—55 to 204C)	260-310	8% max[b]	2% max[b]
G 635 Silicone compound performs at the extreme of —100F, yet shows good oxidation resistance at 450F. It is an outstanding water-repellent seal and electrical insulation for terminals, high-voltage insulators, connectors, disconnects, ignition systems, and electronic gear.	—100 to 450F (—73 to 232C)	200-300	10% max[b]	3% max[b]
G 641 is a metal oxide dimethyl silicone dielectric heat transfer compound possessing very high thermal conductivity. Its temperature range is —65F to 400F.	—65 to 400F to (—55 to 204C)	240-320	2% max[b]	2% max[b]
G 642 is a metal oxide methyl alkyl dielectric heat transfer compound possessing very high thermal conductivity in addition to being paintable* and solderable.* Its temperature range is —65F to 350F. *After compound is removed from surface.	—65 to 350F (—55 to 177C)	200-260	1% max[a]	2% max[a]
G 643 is a metal oxide dimethyl silicone dielectric heat transfer compound with a consistency that allows for ease in pumping and handling on the production line. A slight loss in thermal conductance compared to G 641 is realized. Its operating temperature range is —40F to 400F.	—40F to 400F (—40C to 204C)	280-350	2% max[b]	2% max[b]
G 661 is a tacky dielectric compound for use as a seal and joining compound on underground cable and electrical connectors. Its operating range is —40F to 400F.	—40 to 400F (—40 to 204C)	200-275	1% max[b]	3% max[b]
G 687 compound is a dielectric compound found useful on high voltage insulators to prevent flashover. G 687 provides a water-resistant coating and has the ability to engulf particulate contaminants to provide long flashover-free insulator life.	—65 to 400F (—55 to 204C)	250-300	10% max[b]	3% max[b]

GENERAL PURPOSE COMPOUNDS

	Temp. Range	Consistency Worked Penetration[1]	Bleed[2]	Evaporation
G 623, a soft dielectric compound, has exhibited outstanding corrosion protection when extremely low temperatures are not involved (not below —40F and a maximum of 400F is encountered). This is a useful general-purpose water repellent with good dielectric properties.	—40 to 400F (—40 to 204C)	200-270	5% max[b]	3% max[b]
G 662 is a tackier version of G 623 and has found considerable use in protecting electrical connections, such as battery terminals, and as valve lubes and "O" ring lubes. It is a good dielectric compound with an operating range of —40F to 400F.	—40 to 400F (—40 to 204C)	230-280	3% max[b]	3% max[b]
G 685, a dielectric galvanic protective compound, has found application in coating electrical bus bars to prevent corrosion. Its wide temperature range of —65F to 400F makes it a valuable all-around compound.	—65 to 400F (—55 to 204C)	240-320	6% max[a]	3% max[a]
G 692 is a silicone compound found useful for anti-galling or anti-seize use on slow-moving metal surfaces. With superior lubricity vs. other silica-filled compounds, this product performs in a wide temperature range, —100F to 400F.	—100 to 400F (—73 to 204C)	240-300	10% max[b]	4% max[b]
G 697 compound meets MIL-C-21567 requirements and is an excellent corrosion preventive and lubricant for use on unpainted threaded or non-threaded ferrous metal surfaces. Chemically inert, as are all silicone compounds, it performs from —70F to 300F. It is also suggested as a rubber lubricant for low and medium swelling rubber components.	—70 to 300F (—57 to 149C)	260-320	4% max[a]	2% max[a]

Appearance	Spec. Grav.[3]	Thermal Conductivity[4]	Dielectric Strength[5]	Vol. Resis.[6]	Dielectric Const.	Dissipation Factor	Comments
white-semi-translucent	1.03	a) 0.09 b) 3.710^{-4}	500	$1x10^{12}$ min	3.1	0.005	Dielectric compound with copper corrosion preventative
white-semi translucent	1.03	a) 0.085 b) $3.8x10^{-4}$	500	$1x10^{13}$ min	2.9	0.0005	Dielectric compound Meets MIL-S-8660B
white-semi-translucent	1.04	a) 0.1 b) $4.4x10^{-4}$	500	$1x10^{14}$ min	3.0	0.0025	Low temperature dielectric compound insulator protector
white opaque	2.6	a) 0.42 b) $1.75x10^{-3}$	500	$5x10^{14}$ min	4.5	0.0005	Thermal conductive compound
white opaque	3.0	a) 0.55 b) $2.27x10^{-3}$	500	$1x10^{12}$ min	4.9	0.01	Thermal conductive compound
white opaque	2.3	a) .31 b) 1.25×10^{-3}	500	1×10^{14} min	4.2	0.005	Thermal conductive compound
white-semi-translucent	1.03	a) 0.1 b) $4.4x10^{-4}$	500	$1x10^{13}$ min	3.0	0.005	Tacky dielectric and general purpose compound
white-semi-translucent	1.03	a) 0.1 b) $4.4x10^{-4}$	500	$1x10^{13}$ min	3.0	0.005	Insulator protective compound

Appearance	Spec. Grav.[3]	Thermal Conductivity[4]	Comments
white-semi-translucent	1.03	a) 0.1 b) $4.4x10^{-4}$	Low bleed general purpose compound
white-semi-translucent	1.03	a) 0.1 b) $4.4x10^{-4}$	Workable. Tacky general purpose
yellow	1.03	a) 0.13 b) $4.5x10^{-4}$	Corrosion protection compound
off white translucent	1.05	a) 0.1 b) $4.4x10^{-4}$	Thread lube meets API-5A2
light cream to white	1.03	a) 0.08 b) $3.7x10^{-4}$	Corrosion preventive compound for ferrous parts Meets MIL-C-21567

FOOTNOTES:

1 – Penetration after working 60X ASTM D-217

2 – Beaker and cone method
a) 150C – 24 hrs
b) 200C – 24 hrs

3 – Specific gravity column

4 – Hot wire method
a) BTU/ft²/hr/°F/ft
b) G-CAL/cm²/sec/°C/cm

5 – ASTM D-149 – 50-mil gap

6 – ASTM D-257

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